In the Claims

1. A floor care apparatus, comprising:

a nozzle assembly;

an agitator in said nozzle assembly;

a motor coupled to said agitator for driving said agitator at two or more speeds;

a switch with at least two positions for a user to indicate a mode-of-operation preference; and

an agitator motor control circuit responsive to said switch and coupled to supply at least two signals to said motor, one of said two signals having a fixed duty cycle of less than 1.0, the other of said two signals being substantially constant.

2. The floor care apparatus of claim 1, wherein said fixed duty cycle is one of about 0.25 and about 0.5.

3. The floor care apparatus of claim 1, wherein said one of said two signals includes a waveform, having a period, with a substantially constant voltage value that is on for only one or two of four quarters of said period, said waveform repeating for additional periods.

4. The floor care apparatus of claim 1, further including a suction fan motor separate from said motor coupled to said agitator.

5. The floor care apparatus of claim 1, wherein operation of said switch changes resistor connections such that a voltage input to an analog to digital converter falls within a specified input range for said analog to digital converter.

6. The floor care apparatus of claim 5, wherein a total resistance value of said resistor connections multiplied by a current value of a fixed current source determines said voltage input.

7. A floor care apparatus, comprising:

a nozzle assembly;

a first and second agitator in said nozzle assembly;

an agitator motor control circuit to drive said first agitator at a first and second speed and said second agitator at a first and second speed, said first and second speeds of each of said first and second agitators being one of the same speed and a different speed.

8. The floor care apparatus of claim 7, further including a first and second motor for driving said first and second agitators.

9. The floor care apparatus of claim 7, further including a motor for driving said first and second agitators.

10. The floor care apparatus of claim 9, further including a gear mechanism between one of said motor and said first agitator and said motor and said second agitator not found between the other of said motor and said first agitator and said motor and said second agitator.

11. The floor care apparatus of claim 7, further including a switch with at least two positions for a user to indicate a mode-of-operation preference thereby indicating a preference of said first and second speeds, said agitator motor control circuit responsive to said switch.

12. The floor care apparatus of claim 11, wherein an output of said agitator motor control circuit one of a signal having a fixed duty cycle of less than 1.0 and a signal being substantially constant.

13. The floor care apparatus of claim 12, wherein said fixed duty cycle is one of about 0.25 and about 0.5.

14. The floor care apparatus of claim 12, wherein said one of said signal having said fixed duty cycle includes a waveform, having a period, with a substantially constant voltage value that is on for only one or two of four quarters of said period, said waveform repeating for additional periods.

15. The floor care apparatus of claim 7, further including a suction fan motor separate from a motor coupled to one of said first and second agitators.

16. The floor care apparatus of claim 7, further including a switch with at least two positions for a user to indicate a mode-of-operation preference thereby indicating a preference of said first and second speeds, said agitator motor control circuit responsive to said switch wherein operation of said switch changes resistor connections such that a voltage input to an analog to digital converter falls within a specified input range for said analog to digital converter.

17. A vacuum cleaner, comprising:

a suction fan motor for providing a suction airflow during use;

a nozzle assembly in fluid communication with the suction fan motor, an airflow path existing from said nozzle assembly to said suction fan motor;

at least one agitator in said nozzle assembly;

an agitator motor coupled to said at least one agitator for driving said agitator at two or more speeds;

a switch with at least two positions for a user to indicate a mode-of-operation preference thereby indicating a preference of said two or more speeds; and

an agitator motor control circuit responsive to said switch and coupled to supply at least two signals to said agitator motor in accordance with said speed preference.

18. The vacuum cleaner of claim 17, wherein said agitator motor does not exist in said airflow path.

19. The vacuum cleaner of claim 17, wherein one of said two signals has a substantially repeating rectangular voltage waveform with a fixed duty cycle of about 0.25 or 0.5.

20. The vacuum cleaner of claim 17, wherein the other of said two signals is a substantially constant voltage level.

21. The vacuum cleaner of claim 17, further including a second motor for driving a second agitator.

22. The vacuum cleaner of claim 17, wherein said one of said two signals includes a waveform having a period with a substantially constant voltage value that is on for only one or two of four quarters of said period, said waveform repeating for additional periods.

23. The floor care apparatus of claim 17, wherein operation of said switch changes resistor connections in a circuit such that a voltage

input to an analog to digital converter falls within a specified input range for said analog to digital converter.

24. The floor care apparatus of claim 23, wherein a total resistance value of said resistor connections multiplied by a current value of a fixed current source determines a voltage value of said voltage input.

25. A vacuum cleaner, comprising:

a suction fan motor for providing a suction airflow during use;

a nozzle assembly in fluid communication with the suction fan motor for sucking up dirt and debris from a surface to be cleaned, an airflow path existing from said nozzle assembly to said suction fan motor;

at least one agitator in said nozzle assembly;

an agitator motor coupled to said at least one agitator for driving said agitator at two or more speeds, said agitator motor not existing in said airflow path;

a switch with at least two positions for a user to indicate a mode-of-operation preference thereby indicating a speed preference of said two or more speeds; and

an agitator motor control circuit responsive to said switch and coupled to supply at least two signals to said agitator motor in accordance with said speed preference, wherein one of said two signals has a substantially repeating rectangular voltage waveform with a fixed duty cycle and the other of said two signals has a substantially constant voltage level.